

**Appendix II with a clean copy of
pending claims 1-19, 27-40, 42-46, 48-52, 64-67, 70-75, and 83-86**

1. A method for amplifying a target polynucleotide contained in a sample comprising the steps of:
 - (a) contacting the sample with a first support which binds to the target polynucleotide;
 - (b) substantially separating the support and bound target polynucleotide from the sample, thereby producing a separated target polynucleotide; and
 - (c) amplifying *in vitro* the separated target polynucleotide of (b).
2. The method of claim 1 wherein the first support is retrievable.
3. The method of claim 1 wherein the first support includes a probe which binds with the target polynucleotide.
4. The method of claim 1 wherein said amplifying *in vitro* comprises amplifying said separated target polynucleotide with a polymerase.
5. The method of claim 4 wherein the polymerase is a DNA polymerase, an RNA polymerase, or a transcriptase.
6. The method of claim 4 wherein the separated target polynucleotide is a DNA polynucleotide and the polymerase is a DNA polymerase.
7. A method for detecting a target polynucleotide contained in a sample comprising the steps of:
 - (a) contacting the sample with a first support which binds to the target polynucleotide;
 - (b) substantially separating the first support and bound target polynucleotide from the sample, thereby producing a separated target polynucleotide;
 - (c) amplifying *in vitro* the separated target polynucleotide of (b), thereby producing an amplified target polynucleotide; and
 - (d) detecting the presence of the amplified target polynucleotide of (c) as indicative of the presence of the target polynucleotide in said sample.

DRAFT - 10/22/2001

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

8. The method of claim 7 wherein the first support is retrievable.
9. The method of claim 8 wherein the first support includes a probe which binds with the target polynucleotide.
10. The method of claim 7 wherein said amplifying *in vitro* comprises amplifying said separated target polynucleotide with a polymerase.
11. The method of claim 10 wherein the polymerase is a DNA polymerase, an RNA polymerase, or a transcriptase.
12. The method of claim 11 wherein the separated target polynucleotide is a DNA polynucleotide and the polymerase is a DNA polymerase.
13. The method of claim 7 wherein the amplified target polynucleotide is contacted with a label, and the presence of the target polynucleotide in the sample is indicated by detection of said label.
14. The method of claim 7 wherein the amplified target polynucleotide is contacted with a labeled probe, and the presence of the target polynucleotide in the sample is indicated by detection of said labeled probe.
15. The method of claim 7 wherein the amplified target polynucleotide is contacted with a second support which binds to the amplified target polynucleotide.
16. The method of claim 15 wherein the second support includes a labeled probe, and the presence of the target polynucleotide in the sample is indicated by detection of said labeled probe.
17. The method of claim 16 wherein said amplifying *in vitro* comprises amplifying said separated target polynucleotide with a polymerase.
18. The method of claim 17 wherein the separated target polynucleotide is a DNA polynucleotide and the polymerase is a DNA polymerase.
19. A method for detecting a target polynucleotide contained in a sample comprising the steps of:
 - (a) contacting the sample with a first support which binds to the target polynucleotide;

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HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
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(b) substantially separating the first support and bound target polynucleotide from the sample, thereby producing a separated target polynucleotide;

(c) amplifying *in vitro* the separated target polynucleotide of (b) with a DNA polymerase, thereby producing an amplified target polynucleotide;

(d) contacting the amplified target polynucleotide of (c) with a second support which binds to the amplified target polynucleotide and also with a labeled probe which binds to the amplified target polynucleotide; and

(e) detecting the presence of the labeled probe as indicative of the presence of the target polynucleotide in said sample.

[claims 20-26 canceled]

27. A method for amplifying a target polynucleotide contained in a sample medium comprising the steps of:

(a) contacting the sample medium with a reagent comprising a first nucleic acid probe which binds to the target polynucleotide to form a probe-target complex;

(b) contacting the sample medium with a support which binds to the first nucleic acid probe of the probe-target complex;

(c) substantially separating the support and bound probe-target complex from the sample medium;

(d) contacting the support and bound probe-target complex with a second medium;

(e) releasing the probe-target complex into the second medium;

(f) substantially separating the support from the second medium; and

(g) amplifying *in vitro* the target polynucleotide in the probe-target complex present in the second medium.

28. A method for detecting a target polynucleotide contained in a sample medium comprising the steps of:

(a) contacting the sample medium with a reagent comprising a first nucleic acid probe which binds to the target polynucleotide to form a probe-target complex;

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HENDERSON
FARABOW
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DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
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(b) contacting the sample medium with a support which binds to the first nucleic acid probe of the probe-target complex;

(c) substantially separating the support and bound probe-target complex from the sample medium;

(d) contacting the support and bound probe-target complex with a second medium;

(e) releasing the probe-target complex into the second medium;

(f) substantially separating the support from the second medium;

(g) amplifying *in vitro* the target polynucleotide in the probe-target complex present in the second medium; and

(h) detecting the presence of the target polynucleotide in the second medium as indicative of the presence of the target polynucleotide in said sample.

29. The method of detecting a target polynucleotide of claim 28 wherein said amplifying *in vitro* comprises amplifying said target polynucleotide with a polymerase.

30. The method for detecting a target polynucleotide of claim 29 wherein the polymerase is a DNA polymerase, an RNA polymerase, or a transcriptase.

31. The method for detecting a target polynucleotide of claim 30 wherein the polymerase is a DNA polymerase.

32. The method for amplifying a target polynucleotide of claim 27 wherein said amplifying *in vitro* comprises amplifying said target polynucleotide with a polymerase.

33. The method for amplifying a target polynucleotide of claim 32 wherein the polymerase is a DNA polymerase.

34. A method for amplifying a target polynucleotide contained in a sample medium comprising the steps of:

(a) contacting the sample medium with a support and a probe which binds to the target polynucleotide and the support;

(b) substantially separating the support and bound probe and target polynucleotide from the sample medium;

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1300 I Street, NW
Washington, DC 20005
202.408.4000
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- (c) contacting the support and bound probe and target polynucleotide with a second medium;
- (d) releasing the target polynucleotide of (c) into the second medium;
- (e) substantially separating the support and bound probe from the second medium; and
- (f) amplifying *in vitro* the target polynucleotide present in the second medium.

35. The method for amplifying a target polynucleotide of claim 34 wherein said amplifying *in vitro* comprises amplifying said target polynucleotide with a polymerase.

36. The method for amplifying a target polynucleotide of claim 35 wherein the polymerase is a DNA polymerase, an RNA polymerase, or a transcriptase.

37. The method for amplifying a target polynucleotide of claim 36 wherein the polymerase is a DNA polymerase.

38. A method for detecting a target polynucleotide contained in a sample medium comprising the steps of:

- (a) contacting the sample medium with a support and probe which binds to the target polynucleotide and the support;
- (b) substantially separating the support and bound probe and target polynucleotide from the sample medium;
- (c) contacting the support and bound probe and target polynucleotide with a second medium;
- (d) releasing the target polynucleotide of (c) into the second medium;
- (e) substantially separating the support and bound probe from the second medium;
- (f) amplifying *in vitro* the target polynucleotide present in the second medium, thereby producing an amplified target polynucleotide; and
- (g) detecting the presence of the amplified target polynucleotide in the second medium as indicative of the presence of the target polynucleotide in said sample.

39. The method for detecting a target polynucleotide of claim 38 wherein said amplifying *in vitro* comprises amplifying said target polynucleotide with a polymerase.

40. The method for detecting a target polynucleotide of claim 39 wherein the polymerase is a DNA polymerase.

[claim 41 canceled]

42. The amplification method of claim 1 wherein said amplifying *in vitro* is linear or exponential.
43. The amplification method of claim 42 wherein said amplifying *in vitro* is exponential.
44. The amplification method of claim 1 wherein said amplifying *in vitro* comprises amplifying said separated target polynucleotide with at least one oligonucleotide primer.
45. The amplification method of claim 44 wherein said amplifying *in vitro* is linear or exponential.
46. The amplification method of claim 1 wherein said amplifying *in vitro* comprises amplifying said separated target polynucleotide with more than one polymerase.

[claim 47 canceled]

48. The detection method of claim 7 wherein said amplifying *in vitro* is linear or exponential.
49. The detection method of claim 48 wherein said amplifying *in vitro* is exponential.
50. The detection method of claim 7 wherein said amplifying *in vitro* comprises amplifying said separated target polynucleotide with at least one oligonucleotide primer.
51. The detection method of claim 50 wherein said amplifying *in vitro* is linear or exponential.
52. The detection method of claim 7 wherein said amplifying *in vitro* comprises amplifying said separated target polynucleotide with more than one polymerase.

[claims 53-63 canceled]

64. The method of claim 1 wherein said amplifying *in vitro* comprises amplifying said separated target polynucleotide non-specifically.
65. The method of claim 1 wherein said amplifying *in vitro* comprises amplifying said separated target polynucleotide specifically.
66. The method of claim 7 wherein said amplifying *in vitro* comprises amplifying said separated target polynucleotide non-specifically.

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1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
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67. The method of claim 7 wherein said amplifying *in vitro* comprises amplifying said separated target polynucleotide specifically.

[claims 68-69 canceled]

70. The method of claim 9 wherein the probe first binds with the target polynucleotide by hybridizing to a specific sequence in the target polynucleotide, and then binds to the first support.

71. The method of claim 70 wherein said amplifying *in vitro* comprises amplifying said separated target polynucleotide non-specifically.

72. The method of claim 70 wherein said amplifying *in vitro* comprises amplifying said separated target polynucleotide specifically.

73. The method of claim 72 wherein the sample is a clinical sample.

74. The method of claim 73 wherein the probe comprises a nucleotide sequence specific to a complementary nucleotide sequence in the target polynucleotide and a homopolymeric tail sequence.

75. The method of claim 74 wherein the support comprises a homopolymeric tail complementary to the homopolymeric tail of the probe.

[claims 76-82 canceled]

83. The method of claim 1 wherein said amplifying *in vitro* comprises amplifying said separated target polynucleotide with specially tailored primers.

84. The method of claim 7 wherein said amplifying *in vitro* comprises amplifying said separated target polynucleotide with specially tailored primers.

85. The method of claim 70 wherein said amplifying *in vitro* comprises amplifying said separated target polynucleotide with specially tailored primers.

86. The method of claim 85 wherein the sample is a clinical sample.